

Remarks

The Office Action mailed March 16, 2006 has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-11 are now pending in this application. Claims 1-8 are rejected. Claims 10 and 11 are allowed. Claim 9 is objected to. Claims 1-9 have been amended. No new matter has been added. A fee calculation sheet is submitted for the now independent Claim 9.

The objections to Claims 2, 5, and 7 is respectfully traversed. Applicants respectfully traverse the statement that Claims 1 and 4 positively claim only one capacitor. Applicants respectfully submit that Claims 1 and 4 do not positively claim “only one capacitor”. Rather, Claims 1 and 4 recite a capacitor. Moreover, Applicants have amended Claims 2, 5, and 7. Accordingly, Applicants respectfully request that the objections to Claims 2, 5, and 7 be withdrawn.

The rejection of Claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over Dejon et al. (U.S. Patent No. 4,851,780) in view of Carlson (U.S. Patent No. 5,304,932) is respectfully traversed.

Dejon et al. describe an RF coil that is a Helmholtz coil including two spaced winding sections (3,4), each of which consists of one turn only (column 3, lines 52-54). Two conductors (1 and 2) lead to the ends of the winding sections (3 and 4) (column 4, lines 32-34). An adjustable capacitor (7) connects the second conductor (2) to earth (column 4, lines 60-61)

Carlson describes a plurality of RF shield foils (42, 44) (column 4, lines 40-44). The RF shield foils are electrically isolated from all other MRI structures (column 4, lines 40-44). Such conductive layers could well be electrically grounded within an MR system (column 4, lines 40-44).

Claim 1 recites an RF shield for MRI systems, the RF shield comprising “a connector configured to connect a first capacitor to said RF shield, wherein said RF shield is grounded via the first capacitor and is configured to prevent coupling

between a gradient coil and an RF coil, wherein said RF shield is separate from the first capacitor, and wherein one of the MRI systems configured to generate a vertical magnetic field.”

Neither Dejon et al. nor Carlson, considered alone or in combination, describe or suggest an RF shield as recited in Claim 1. Specifically, neither Dejon et al. nor Carlson, considered alone or in combination, describe or suggest the RF shield that is grounded via the first capacitor and is configured to prevent coupling between a gradient coil and an RF coil, where the RF shield is separate from the first capacitor. Rather, Dejon et al. describe an RF coil including two spaced winding sections. Two conductors including a first and a second conductor lead to the ends of the winding sections. An adjustable capacitor connects the second conductor to earth. A description of the RF coil in Dejon et al. does not teach the RF shield that is configured to prevent coupling between a gradient coil and an RF coil. Carlson describes a plurality of RF shield foils that are electrically isolated from all other MRI structures. Such conductive layers could well be electrically grounded within an MR system. A description of the conductive layers that could well be electrically grounded does not teach the RF shield that is grounded via the first capacitor. Accordingly, neither Dejon et al. nor Carlson, considered alone or in combination, describe or suggest the RF shield that is grounded via the first capacitor and is configured to prevent coupling between a gradient coil and an RF coil, where the RF shield is separate from the first capacitor. For the reasons set forth above, Claim 1 is submitted to be patentable over Dejon et al. in view of Carlson.

Claims 2 and 3 depend from independent Claim 1. When the recitations of Claims 2 and 3 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2 and 3 likewise are patentable over Dejon et al. in view of Carlson.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 1-3 be withdrawn.

The rejection of Claims 4-8 under 35 U.S.C. § 103(a) as being unpatentable over Richard et al. (U.S. Patent No. 5,592,087) in view of Carlson is respectfully traversed.

Richard et al. describe an RF shield including a plurality of analogous metallic strips with interconnecting low impedance bridges that are provided on both surfaces of a dielectric layer (62) (column 4, lines 43-46). Four tabs (76) provide low impedance paths between a plurality of electrical conductors on opposite sides of the dielectric layer (column 4, lines 50-51). The tabs make convenient attachment points for ground connections (column 4, lines 54-55).

Carlson is described above.

Claim 4 recites an MRI system comprising “a first capacitor; a radio-frequency (RF) coil; a gradient coil; and an RF shield configured to prevent coupling between said RF coil and said gradient coil, wherein said MRI system configured to generate a vertical magnetic field, and said RF shield configured to be grounded via said first capacitor, and wherein said RF shield is separate from said first capacitor.”

Neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest an MRI system as recited in Claim 4. Specifically, neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest an RF shield configured to prevent coupling between the RF coil and the gradient coil, where the RF shield configured to be grounded via the first capacitor, and where the RF shield is separate from the first capacitor. Rather, Richard et al. describe an RF shield including a plurality of analogous metallic strips with interconnecting low impedance bridges that are provided on both surfaces of a dielectric layer. Four tabs provide low impedance paths between a plurality of electrical conductors on opposite sides of the dielectric layer. The tabs make convenient attachment points for ground connections. A description of the tabs that make convenient attachment points for ground connections does not teach an RF shield as recited in Claim 4, where the RF shield is separate from the first capacitor. Carlson describes a plurality of RF shield foils that are electrically isolated from all other MRI structures. Such conductive layers could well be electrically grounded within an MR system. A description of the

conductive layers that could well be electrically grounded does not teach the RF shield configured to be grounded via the first capacitor. Accordingly, neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest an RF shield configured to prevent coupling between the RF coil and the gradient coil, where the RF shield configured to be grounded via the first capacitor, and where the RF shield is separate from the first capacitor. For the reasons set forth above, Claim 4 is submitted to be patentable over Richard et al. in view of Carlson.

Claims 5 and 7 depend, directly or indirectly, from independent Claim 4. When the recitations of Claims 5 and 7 are considered in combination with the recitations of Claim 4, Applicants submit that dependent Claims 5 and 7 likewise are patentable over Richard et al. in view of Carlson.

Claim 6 recites a vertical field-type MRI system comprising “a first set of capacitors; a second set of capacitors; an upper RF shield is grounded via said capacitors within said first set at four or more points whose directions are different from one another by an equal angle, wherein said capacitors within said first set are separate from said upper RF shield; and a lower RF shield is grounded via said capacitors within said second set at four or more points whose directions are different from one another by an equal angle, wherein said capacitors within said second set are separate from said lower RF shield.”

Neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest a vertical field-type MRI system as recited in Claim 6. Specifically, neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest an upper RF shield is grounded via the capacitors within the first set at four or more points whose directions are different from one another by an equal angle, where the capacitors within the first set are separate from the upper RF shield, and a lower RF shield is grounded via the capacitors within the second set at four or more points whose directions are different from one another by an equal angle, where the capacitors within the second set are separate from the lower RF shield. Rather, Richard et al. describe an RF shield including a plurality of analogous metallic strips with interconnecting low impedance bridges that are provided on both surfaces of a dielectric layer. Four tabs provide low impedance paths between a plurality of

electrical conductors on opposite sides of the dielectric layer. The tabs make convenient attachment points for ground connections. A description of the tabs that make convenient attachment points for ground connections does not teach an upper RF shield and a lower RF shield as recited in Claim 6, where the capacitors within the first set are separate from the upper RF shield and where the capacitors within the second set are separate from the lower RF shield. Carlson describes a plurality of RF shield foils that are electrically isolated from all other MRI structures. Such conductive layers could well be electrically grounded within an MR system. A description of the conductive layers that could well be electrically grounded does not teach an upper RF shield that is grounded via the capacitors within the first set and a lower RF shield that is grounded via the capacitors within the second set. Accordingly, neither Richard et al. nor Carlson, considered alone or in combination, describe or suggest an upper RF shield is grounded via the capacitors within the first set at four or more points whose directions are different from one another by an equal angle, where the capacitors within the first set are separate from the upper RF shield, and a lower RF shield is grounded via the capacitors within the second set at four or more points whose directions are different from one another by an equal angle, where the capacitors within the second set are separate from the lower RF shield. For the reasons set forth above, Claim 6 is submitted to be patentable over Richard et al. in view of Carlson.

Claim 8 depends from independent Claim 6. When the recitations of Claim 8 are considered in combination with the recitations of Claim 6, Applicants submit that dependent Claim 8 likewise is patentable over Richard et al. in view of Carlson.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 4-8 be withdrawn.

Moreover, Applicants respectfully submit that the Section 103 rejections of Claims 1-8 are not proper rejections. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Dejon et al, Carlson, or Richard et al., considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion

within the Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to combine Carlson with Dejon et al. or Richard et al. because there is no motivation to combine the references suggested in the cited art itself.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejections are based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Richard et al. teach an RF coil including two spaced winding sections. Two conductors including a first and a second conductor lead to the ends of the winding sections. An adjustable capacitor connects the second conductor to earth. Carlson teaches a plurality of RF shield foils that are electrically isolated from all other MRI structures. Such conductive layers could well be electrically grounded within an MR system. Richard et al. teach an RF shield including a plurality of analogous metallic strips with interconnecting low impedance bridges that are provided on both surfaces of a dielectric layer. Four tabs provide low impedance paths between a plurality of electrical conductors on opposite sides of the dielectric layer. The tabs make convenient attachment points for ground connections. Since there is no teaching nor suggestion in the cited art for the combination, the

Section 103 rejections appear to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejection of Claims 1-8 be withdrawn.

For at least the reasons set forth above, Applicants respectfully request that the rejections of Claims 1-8 under 35 U.S.C. 103(a) be withdrawn.

Claim 9 is objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 9 has been amended to be rewritten in independent form to include the limitations of Claim 1, which is the base claim. Accordingly, Claim 9 is in condition for allowance.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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